

WHAT IS CLAIMED IS:

1. An array assay device comprising:
  - (a) a base;
  - (b) a cover; and
  - (c) a clamping member for holding said cover to said base, wherein when said cover is operatively held to said base about a structure comprising an array assembly spaced-apart from a backing element, said array assembly and said backing element are deflected to the substantially the same curvature when said clamping member is operatively actuated.
2. The array assay device of Claim 1, wherein said array assay device is spring loaded.
3. The array assay device of Claim 1, further comprising at least one spring element.
4. The array assay device of Claim 3, wherein said at least one spring element is a separable component from said base and cover.
5. The array assay device of Claim 4, wherein said at least one separable spring element is operatively positioned in at least one of: said cover and said base.
6. The array assay device of Claim 3, wherein said at least one spring element is a disk spring or a coil spring.
7. The array assay device of Claim 6, wherein said at least one spring element is a non-linear spring element.
8. The array assay of Claim 3, where in said device comprises a screw stop for fixing the maximum number of turns of said screw.
9. The array assay device of Claim 1, wherein said array assay device comprises at least one flexure.
10. The array assay device of Claim 9, wherein said at least one flexure is a separate component from said base and said cover.

11. The array assay device of Claim 10, wherein said at least one separate flexure is a clamping member flexure.
12. The array assay device of Claim 10, wherein said cover is said at least one flexure.
13. The array assay device of Claim 10, wherein said base is said at least one flexure.
14. The array assay device of Claim 1, wherein said device is configured to limit the travel of at least one of said base and said cover when they are operatively held together with said clamping member.
15. The array assay device of Claim 14, wherein said device further includes at least one of a spacer and a hardstop for limiting said travel.
16. The array assay device of Claim 14, wherein said device is configured to provide a compression force along the entire length of said at least one of said spacer and said hardstop to provide a substantially uniform capillary gap between said array assembly and said backing element when said clamping member is operatively actuated.
17. A system for performing an array assay, said system comprising:
  - (a) a base;
  - (b) a cover; and
  - (c) a clamping member for holding said cover to said base, wherein when said cover is operatively held to said base about a structure comprising an array assembly spaced-apart from a backing element, said array assembly and said backing element are deflected to the substantially the same curvature when said clamping member is operatively actuated.
18. The system of Claim 17, further comprising an array assembly and a backing element.
19. The system of Claim 17, further comprising at least one of a spacer and a hardstop.

20. A method of assaying a sample for the presence of at least one analyte, said method comprising:

- (a) contacting said sample with a first surface of a backing element to produce a backing element supported sample;
- (b) placing said backing element supported sample in contact with an array assembly to form a structure comprising said backing element and said array assembly;
- (c) holding said structure together using a device according to Claim 1, wherein said array assembly and said backing element are deflected to the substantially the same curvature when said clamping member is operatively actuated; and
- (d) performing an array assay.

21. The method of Claim 20, wherein said urging is accomplished by applying equal, opposing forces to said array assembly and said backing element.

22. The method of Claim 20, wherein said device employed to hold said structure together comprises a flexure.

23. The method of Claim 20, wherein said device employed to hold said structure together comprises at least one spring element.

24. The method of Claim 20, wherein said method further comprising eliminating at least one unwanted bubbles from said structure.

25. The method of Claim 24, wherein said eliminating comprises forcing said at least one unwanted bubble out of a gasket of said backing element.

26. The method of Claim 20, wherein said holding comprises providing a substantially uniform capillary gap between said array assembly and said backing element.

27. The method of Claim 20, further comprising reading said at least one array to obtain a result.

28. The method comprising transmitting data obtained by a method of Claim 27, from a first location to a second location remote from the first location.

29. A method comprising receiving said result obtained by the method of Claim 27.
30. A method for performing an array assay, said method comprising:
- (a) receiving a pre-packaged array assembly in an array assay device according to Claim 1, from a remote site, said pre-packaged array assembly spaced-apart from a backing element by a gasket;
  - (b) performing an array assay using said received array assay device and said pre-packaged array assembly;
  - (c) removing said pre-packaged array assembly from said array assay device; and
  - (d) reading said at least one array to obtain a result.
31. A kit for performing an assay, said kit comprising:
- (a) a base;
  - (b) a cover; and
  - (c) a clamping member for holding said cover to said base, wherein when said cover is operatively held to said base about a structure comprising an array assembly spaced-apart from a backing element, said array assembly and said backing element are deflected to the substantially the same curvature when said clamping member is operatively actuated.
32. The kit of Claim 31, further comprising an array assembly.
33. The kit of Claim 31, further comprising a backing element.